

held at room temperature for 30 minutes and removed for counting. Germinated grains were defined as those with intact tubes at least one grain diameter in length.

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#### 5. Germination of sh<sub>2</sub> pollen grains.

Using the medium described above, we have surveyed several genotypes among our stocks. We first noticed in 1963 a coded entry that consistently demonstrated higher % germination than the control (su<sub>1</sub>) or its allelic stock. Repeated analysis in 1964 of material grown in the field, the greenhouse or the growth room showed that our sh<sub>2</sub> source stock surpassed significantly the germination of all other entries. Reciprocal crosses with several stocks have been prepared but not yet tested. The significance in this report resides not in the fact that our sh<sub>2</sub> stock performs better (we have not demonstrated yet that the performance is a precise function of the sh<sub>2</sub> locus) but that the possibility for differential pollen germination may be exploited.

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#### 1. The metastable nature of paramutable R alleles.

Paramutable R alleles of different geographic origins may be characterized by their differing Rrr phenotypes in a common genetic background. These phenotypes form a continuous series with respect to degree of mottling, and range from forms lighter than characteristic for the standard allele commonly used in paramutation studies, to forms which are self-colored. However, this phenotype is not a suitable property for permanent

characterization of individuals within this class of alleles, because all the paramutable R alleles thus far tested are subject to small but heritable and progressive changes in degree of mottling even when maintained in heterozygotes with alleles hitherto considered non-paramutagenic. These changes may be in either direction, up or down the color scale, and by the correct choice of the opposing allele any paramutable allele may be manipulated so as to express different degrees of mottling. Alleles initially mottled may be enhanced to self-colored expression in single dose by continued maintenance opposite the recessive r. Alleles initially self-colored, or nearly so, can be induced to demonstrate a distinctly mottled phenotype if maintained in a heterozygote with a mottled allele, and a darkly mottled allele will become progressively lighter when maintained with another R allele more lightly mottled than itself.

Derek Styles

2. An aleurone color factor seemingly at the B locus.

In the 1964 News Letter it was reported that a duplicate R factor, conditioning colored aleurone and green seedling, had been located on chromosome 2, probably close to the B locus. This duplicate factor will be referred to here provisionally as 'R-2'. Data presented below suggest that R-2 is allelic to B. All crosses were made in W22 stocks homozygous rg for the chromosome 10 locus but otherwise with all the necessary complementary aleurone color factors. The testcross progeny were scored at the three leaf stage in the greenhouse, at which stage the B phenotype was clearly expressed.

Testcross mating: r-2 B/R-2 b ♀♀ X r-2 b/r-2 b ♂♂

Progeny phenotypes from 34 testcross ears:

<u>Colored kernels</u>		<u>Colorless kernels</u>	
<u>Red seedlings</u>	<u>Green seedlings</u>	<u>Red seedlings</u>	<u>Green seedlings</u>
28	2642	2631	1

The 28 colored kernels giving rise to the red seedlings were distributed among six of the 34 ears as follows: Four ears with one, one ear with five, and one ear with 19. Contamination is a probable source of the majority